

# ABSTRACT

A fuel cell stack (1) performs power generation using an anode gas having hydrogen as its main component, and after a power generation reaction, the anode gas is discharged as anode effluent. The anode effluent is re-circulated into the anode gas through a return passage (5). The return passage (5) comprises a purge valve (8) which discharges the anode effluent to the outside of the passage. In this invention, calculation of a first energy loss caused by an increase in non-hydrogen components in the anode gas while the purge valve (8) is closed (S7, S28), and calculation of a second energy loss which corresponds to the amount of hydrogen lost from the anode gas by opening the purge valve (8) (S8, S29) are performed. By opening the purge valve (8) when the second energy loss equals or falls below the first energy loss, the start timing of purging is optimized.